Louisville Metro Air Pollution Control District
701 West Ormsby Avenue, Suite 303
Louisville, Kentucky 40203-3137

October 29, 2020

Federally Enforceable District Origin Operating Permit
Statement of Basis

Source:	Eurofins Genomics LLC 12701 Plantside Drive Louisville, KY 40299	**Owner:**	Eurofins Genomics LLC 12701 Plantside Drive Louisville, KY 40299

Application Documents:	See Permit Renewal- Related Documents in Section I				
Public Comment Date:	September 26, 2020				
Permitting Engineer:	Shannon Hosey			Permit Number:	O-1849-19-F(R1)
Plant ID:	1849	SIC:	8731	NAICS:	541711

Introduction:

This permit will be issued pursuant to District Regulation 2.17- *Federally Enforceable District Origin Operating Permits*. Its purpose is to limit the plant wide potential emission rates from this source to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

This permit action is to incorporate Construction Permit C-1849-0001-20-F into the current FEDOOP operating permit. This construction permit allowed for construction of three production CFS-384 synthesizers and one R&D CFS-384 synthesizer.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$) and sulfur dioxide (SO_2). Jefferson County is classified as a nonattainment area for ozone (O_3).

Permit Application Type:

☒	Initial issuance	Permit Revision		☐	Permit renewal
		☐	Administrative		
		☐	Minor		
		☒	Significant		

Compliance Summary

☒	Compliance certification signed	☐	Compliance schedule included
☐	Source is out of compliance	☒	Source is operating in compliance

I. Source Information

1. Product Description: Eurofins Genomics LLC is a genomics lab.

2. Process Description: Eurofins Genomics LLC is a provider of DNA sequencing services, DNA synthesis products, and bioinformatic services for academic and industrial research.

3. Site Determination: There are no other facilities that are contiguous or adjacent to this facility.

4. Emission Unit Summary:

Emission Unit	Equipment Description
U1, U2, U3, U4	Synthesis Process, Parr Deprotection System, Elution and Purification Process, Waste Transfer Process
U7	Emergency Generators

5. Fugitive Sources: The fugitive sources identified are from the genomics lab equipment.

6. Permit Revisions:

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Description
Initial	O-1849-14-M	10/10/2014	NA	Initial	Initial Permit Issuance
R1	O-1849-14-M (R1)	09/29/2016	NA	Revision	Incorporation of two new emergency generators and removal of a generator that the source never installed
Initial	O-1849-19-F	03/19/2019	03/19/2019	Signif.	• Source reclassified as a FEDOOP • Identifies new equipment, proposed new equipment and equipment that has been removed or was never

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Description
					installed. • Owner/source name change
R1	O-1849-19-F(R1)	10/29/2020	09/26/2020	Signif.	Incorporating Construction Permit C-1849-0001-20-F

7. Construction Permit History:

Permit No.	Effective Date	Description
C-1849-1000-19-F	02/25/2019	Installing a CFS-384 synthesizer and a BLP synthesizer
C-1849-0001-20-F	02/06/2020	Installing three production CFS-384 synthesizers and one R&D CFS-384 synthesizer

8. Permit Renewal-Related Documents

Document Number	Date Received	Description
00096752	01/14/2019	Confidential FEDOOP Application
00096753	01/14/2019	Public FEDOOP Application
126933	12/31/2019	Confidential construction application to install three production CFS-384 synthesizers and one R&D CFS-384 synthesizer
126934	12/31/2019	Public construction application to install three production CFS-384 synthesizers and one R&D CFS-384 synthesizer

9. Emission Summary:

Pollutant	Potential Emissions (ton/yr)	Pollutant that triggered Major Source Status (based on PTE)
CO	2.31	No
NO_x	8.70	No

Pollutant	Potential Emissions (ton/yr)	Pollutant that triggered Major Source Status (based on PTE)
SO_2	0.27	No
PM_{10}	0.42	No
VOC	22.26	No
Total HAPs	18.53	Yes
Single HAP Acetonitrile Methylene chloride	 8.91 8.61	Yes

10. Applicable Requirements

☒	40 CFR 60	☒	SIP	☒	40 CFR 63
☐	40 CFR 61	☒	District Origin	☐	Other

11. Referenced Federal Regulations:

40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

40 CFR 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

II. Regulatory Analysis

1. Stratospheric Ozone Protection Requirements: Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. Eurofins Genomics LLC does not manufacture, sell, or distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.

2. Prevention of Accidental Releases 112(r): Eurofins Genomics LLC does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR Part 68, Subpart F, and District Regulation 5.15, *Chemical Accident Prevention Provisions*, in a quantity in excess of the corresponding specified threshold amount.

3. Basis of Regulation Applicability

a. Plantwide

Eurofins Genomics LLC is not a potential major source, however they are still going to be considered a FEDOOP. Regulation 2.17 – F*ederally Enforceable District Origin Operating Permits* establishes requirements to limit the plant wide potential emission rates to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

Regulations 5.00 5.20, 5.21, and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards. Eurofins is below de minimis for all of their TACs, methylene chloride < 54 lb/hr and 48,800 lb/yr, acetonitrile < 32.40 lb/hr and 28,800 lb/yr, methanol < 10,800 lb/hr and 9,600,000 lb/yr, and triethylamine < 3.78 lb/hr and 3,360 lb/yr.

Regulation 2.17, section 5.2, requires monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the district upon request.

Regulation 2.17, section 7.2, requires stationary sources for which a FEDOOP is issued to submit an Annual Compliance Certification by April 15, of the following calendar year. In addition, as required by Regulation 2.17, section 5.2, the source shall submit an Annual Compliance Report to show compliance with the permit, by March 1 of the following calendar year. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.17, section 3.5.

Four (4) HTS Synthesizers (EP01A, EP01B, EP01C, EP01D) were removed with the installation of four (4) CFR-384 Synthesizers (EP01Q, EP01R, EP01S, EP01T). The CFS-96 Synthesizer (EP01H) was removed with the installation of the CFS-384 Synthesizer (EP01I) unit.

b. **Basis for Applicability:**

Applicable Regulation	Basis for Applicability
7.25	Establishes VOC standards for affected facilities constructed after June 13, 1979
40 CFR 60 Subpart IIII	Applies to facilities with stationary compression ignition internal combustion engines
40 CFR 63 Subpart ZZZZ	Applies to stationary RICE at an area source of HAP emissions

c. **Emission Unit U1, U2, U3, U4 –** Synthesis Process, Parr Deprotection System, Elution and Purification Process, Waste Transfer process

i. **Equipment:**

EP	Install Date	Applicable Regulation
EU U1, Synthesis Process: Manufacture of DNA synthesis products		
EP01E – CFS-96 Synthesizer, Five Lund LLC	2017	STAR, 7.25
EP01F – CFS-96 Synthesizer, Five Lund LLC	2017	STAR, 7.25
EP01G – CFS-96 Synthesizer, Five Lund LLC	2018	STAR, 7.25
EP01I – CFS-384 Synthesizer, Five Lund LLC	2019	STAR, 7.25
EP01J – BLP1 Synthesizer, Dr. Oligo	2016	STAR, 7.25
EP01K – BLP4 Synthesizer, Dr. Oligo	2016	STAR, 7.25
EP01L – BLP5 Synthesizer, Dr. Oligo	2016	STAR, 7.25
EP01M – BLP7 Synthesizer, Dr. Oligo	2016	STAR, 7.25
EP01N – Oligomaker, TAGC	2016	STAR, 7.25
EP01O – Oligomaker, TAGC	2016	STAR, 7.25
EP01P – BLP8 Synthesizer	2019	STAR, 7.25
EP01Q – CFS-384 Synthesizer, Eurofins Genomics for Research and Development	2020	STAR, 7.25
EP01R – CFS-384 Synthesizer, Eurofins Genomics	2020	STAR, 7.25
EP01S – CFS-384 Synthesizer, Eurofins Genomics	2020	STAR, 7.25
EP01T – CFS-384 Synthesizer, Eurofins Genomics	2020	STAR, 7.25
EU U2, Parr Deprotection System: Deprotection of oligonucleotide intermediates		
EP02A – Parr #1 Vessel, Parr Instrument Company	2016	STAR, 7.25
EP02B – Parr #2 Vessel, Parr Instrument Company	2016	STAR, 7.25
EP02C – Biolytic Parr #1 Vessel, Parr Instrument Company	2016	STAR, 7.25
EP02D – Biolytic Parr #2 Vessel, Parr Instrument Company	2016	STAR, 7.25

EP	Install Date	Applicable Regulation
EU U3, Elution and Purification Process: Elution and purification of oligonucleotides		
EP03A – TECAN 1 robot	2016	STAR, 7.25
EP03B – TECAN 2 robot	2016	STAR, 7.25
EP03C – TECAN 3 robot	2016	STAR, 7.25
EP03D – TECAN 4 robot	2016	STAR, 7.25
EP03E – #1 Hamilton LHR robot	2016	STAR, 7.25
EP03F – #2 Hamilton LHR robot	2016	STAR, 7.25
EP03G – Mini Dispenser robot	2016	STAR, 7.25
EP03H – HPSF Machine robot	2016	STAR, 7.25
EU U4, Waste Transfer Process		
EP04 – 4 Waste Storage Totes	2016	STAR, 7.25

ii. **Standards/Operating Limits**

1. **HAP**

Regulation 2.17, section 5.1, allows the source to set a synthetic limit below the major source threshold. Source requested a combined total plantwide synthetic limit of less than twenty-five (25) tons in a 12 consecutive month period, for the Total HAP and ten (10) tons in a consecutive month period for single HAP.

2. **VOC**

Per Regulation 7.25, section 3.1 and the BACT analysis submitted by the source requires the following:

(a) Shall operate all laboratory process equipment, ventilation system, vacuum pump system, and waste transfer equipment according to manufacturer specifications;

(b) Shall use the least amount of VOC containing materials needed;

(c) Shall store all bulk VOC containing materials in closed containers when not in use; and

(d) Shall clean up all spills of any VOC containing materials.

d. **Emission Unit U7:** Emergency Generators

i. **Equipment:**

EP	Install Date	Applicable Regulation
EP07A: One (1) Caterpillar (CPX) diesel fired (Compression) emergency generator rated at 762 HP (500 KW) with a displacement of 2.53 liters per cylinder, rated engine speed of 1800 RPM, and fuel consumption of 31.2 gal/hr	2016	40 CFR 63 Subpart ZZZZ
EP09A: One (1) FPT Industrial (FPX) diesel fired (Compression) emergency generator rated at 530 HP (350 KW) with a displacement of 2.15 liters per cylinder, rated engine speed of 1800 RPM, and fuel consumption of 27.02 gal/hr	2016	40 CFR 60 Subpart IIII

ii. **Standards/Operating Limits**

HAP

1. 40 CFR 60 Subpart IIII establishes standards for stationary CI internal combustion engines that commences construction after July 11, 2005.

2. 40 CFR 63 Subpart ZZZZ establishes standards for national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions.

III. Other Requirements

1. Temporary Sources: The source did not request to operate any temporary facilities.

2. Short Term Activities: The source did not report any short-term activities.

3. Emissions Trading: N/A

4. Alternative Operating Scenarios: The source did not request any alternative operating scenarios.

5. Compliance History: N/A

6. Calculation Methodology or Other Approved Method:

Generally, emissions are calculated by multiplying the throughput (ton, MMCF,

gallons, etc.) or hours of operation of the equipment by the appropriate emission factor and accounting for any control devices unless otherwise approved in writing by the District.

Table 1, Unit U1, U2, U3, U4: Synthesis Process, Parr Deprotection System, Elution and Purification Process, Waste Transfer process

EP	Equipment	Emission Factor/Methodology
EP01E	CFS-96, Five Lund LLC	
EP01F	CFS-96, Five Lund LLC	Emissions are estimated by calculating the total solvent used per batch and applying a waste removal factor.
EP01G	CFS-96, Five Lund LLC	
EP01I	CFS-384, Five Lund LLC	
EP01J	BLP1, Dr. Oligo	
EP01K	BLP4, Dr. Oligo	
EP01L	BLP5, Dr. Oligo	
EP01M	BLP7, Dr. Oligo	
EP01N	Oligomaker, TAGC	
EP01O	Oligomaker, TAGC	
EP01P	BLP8	
EP01Q	CFS-384, Eurofins Genomics for R&D	
EP01R	CFS-384, Eurofins Genomics	
EP01S	CFS-384, Eurofins Genomics	
EP01T	CFS-384, Eurofins Genomics	
EP02A	Parr #1, Parr Instrument Company	VOC Emissions (lbs/hr) = lbs MMA/batch /batch time*8760/2000
EP02B	Parr #2, Parr Instrument Company	
EP02C	Biolytic Parr #1 Parr Instrument Company	
EP02D	Biolytic Parr #2, Parr Instrument Company	
EP03A	TECAN 1	Emissions are estimated by calculating the total solvent used per batch and applying a waste removal factor.
EP03B	TECAN 2	
EP03C	TECAN 3	
EP03D	TECAN 4	
EP03E	#1 Hamilton LHR	
EP03F	#2 Hamilton LHR	
EP03G	Mini Dispenser	
EP03H	HPSF Machine	
EP04	4 Waste Storage Totes	AP-42, Chapter 7.1

Table 2, Unit U7: Emergency Generators

EP	Equipment	Emission Factor
EP07A	One (1) Caterpillar (CPX) diesel fired (Compression) emergency generator rated at 762 HP (500 KW) with a displacement of 2.53 liters per cylinder, rated engine speed of 1800 RPM, and fuel consumption of 31.2 gal/hr.	AP-42, Table 3.4-1 and 3
EP09A	One (1) FPT Industrial (FPX) diesel fired (Compression) emergency generator rated at 530 HP (350 KW) with a displacement of 2.15 liters per cylinder, rated engine speed of 1800 RPM, and fuel consumption of 27.02 gal/hr.	AP-42, Table 3.3-1 and 2

7. Insignificant Activities

Equipment	Quantity	PTE (tpy)	Basis for Exemption
Natural Gas Hot Water Boiler[1]	1	NO_X = 0.35	Appendix A to Regulation 1.02, section 1.1
Reagent Hood (laboratory venting)	1	NA	Appendix A to Regulation 1.02, section 3.11
Diesel Tanks AST 1,001 gallons 693 gallons	2	VOC = 0.0011 0.00078	Appendix A to Regulation 1.02, section 3.25

1) Insignificant activities identified in District Regulation 1.02, Appendix A, may be subject to size or production rate disclosure requirements.

2) Insignificant activities identified in District Regulation 1.02, Appendix A shall comply with generally applicable requirements.

3) The owner or operator shall annually submit an updated list of insignificant activities that occurred during the preceding year, with the compliance certification due April 15th.

4) Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.

5) The owner or operator may elect to monitor actual throughputs for each of the insignificant activities and calculate actual annual emissions, or use Potential to Emit (PTE) as the annual emissions for each piece of equipment.

6) The District has determined that no monitoring, record keeping, or reporting requirements apply to the insignificant activities listed, except for the equipment that has an applicable regulation and permitted under an insignificant activity (IA) unit.

1 The heat input capacity for the boiler is less than 1.0 MMBtu/hr; therefore, it is not subject to District Regulation 7.06.